

IN THE CLAIMS

This listing of claims replaces all prior versions, and listings, in this application.

1. (Currently Amended) A single layer anti-reflective hard-coat which comprises between 5 to 75 weight % of inorganic nano-particles to provide the hard-coat with a nano-structured surface having randomly distributed ridges and troughs,

wherein the ridges having a height in the range of 50-200nm and distances between ridges is less than about 400 nm,

wherein the hard-coat increases an optical transmission of a substrate on which the hard-coat is formed in at least a range of wavelengths of the electromagnetic spectrum and exhibits a refractive index gradient normal to the substrate that decreases from that of the hard-coat to that of air over a spatial length scale, and

wherein the hard-coat has a hardness above 0.7 GPa and scratch resistance above $5 \text{ mJ } \mu\text{m}^{-3}$, as measured with nano-indentation on a bulk material that is used to make the hard-coat, and

wherein the hard-coat is prepared by a process comprising the steps of:

a) applying a mixture on a substrate, which mixture comprises

i. at least a first material which does not crosslink under the conditions chosen in step b), said first material being hydroxypropyl cellulose

ii. at least a second material which does crosslink under the conditions chosen in step b)

iii. nano-particles, and

iv. optionally at least one solvent

b) inducing crosslinking in the mixture applied to the substrate, subsequently removing at least part of the first material.

2. (cancelled)

3. (Currently Amended) A hard-coat A single layer anti-reflective hard-coat according to claim 1, having a hardness of above 1.0 GPa.

4. (Currently Amended) A hard-coat A single layer anti-reflective hard-coat according to claim 1 having a reduced tensile modulus above 3 GPa as measured by nano-indentation.

5. (Currently Amended) A hard-coat A single layer anti-reflective hard-coat according to claim 1 having a scratch resistance above $15 \text{ mJ } \mu\text{m}^{-3}$ as measured by nano-indentation.

6. (Currently Amended) A hard-coat A single layer anti-reflective hard-coat according to claim 1 containing from 15 to 50 weight % of inorganic nano-particles.

7-19. (cancelled)

20. (Currently Amended) Shaped articles comprising a single layer anti-reflective hard-coat according to claim 1.

21. (Currently Amended) A composite structure comprising a single layer anti-reflective hard-coat according to claim 4 wherein the hard-coat has a reduced tensile modulus above 8.5 GPa.

22. (Currently Amended) A composite structure comprising a single layer anti-reflective hard-coat according to claim 4 wherein the hard-coat has a reduced tensile modulus above 20 GPa.

23. (Currently Amended) A composite structure comprising a single layer anti-reflective hard-coat according to claim 4 wherein the hard-coat has a reduced tensile modulus above 40 GPa.

24. (Currently Amended) A hard-coat A single layer anti-reflective hard-coat according to claim 5, having a scratch resistance above $30 \text{ mJ } \mu\text{m}^{-3}$ as measured by nano-indentation.

25. (Currently Amended) A hard-coat A single layer anti-reflective hard-coat according to claim 5, having a scratch resistance above $60 \text{ mJ } \mu\text{m}^{-3}$ as measured by nano-indentation.

26. (New) A single layer anti-reflective hard-coat wherein said hard coat is made from a composition comprising hydroxypropyl cellulose.